

NEW SPECIES OF COLORADO APHIDIDÆ, WITH NOTES
UPON THEIR LIFE-HABITS.

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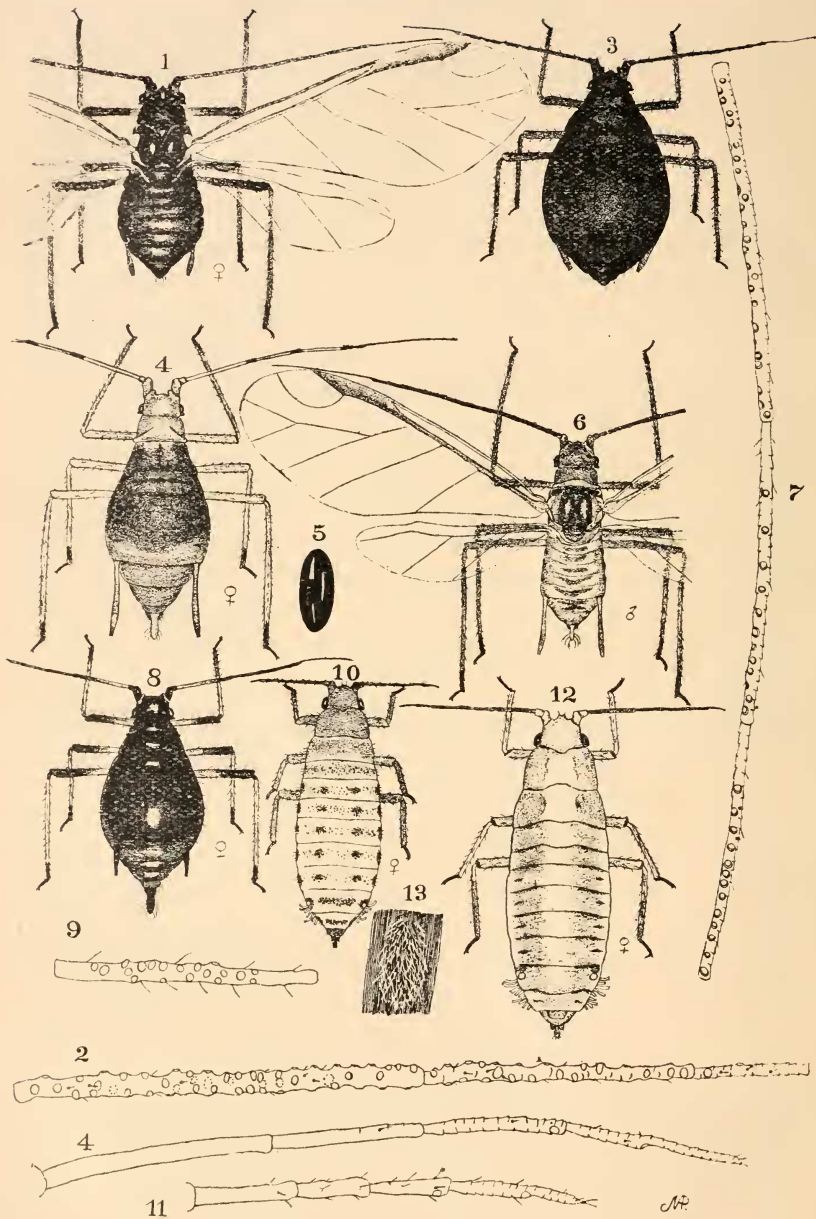
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During October, 1906, Mr. L. C. Bragg discovered upon the lawn grass (*Poa pratensis*) upon the campus of the Colorado Agricultural College, a black *Rhopalosiphum* that seems to be new. It continued upon the grass through the winter, and in warm situations, as upon the south side of buildings, it became extremely abundant in the spring. Through the summer and early fall the louse was not noticed or specially sought for, but this fall (1907) it is again abundant, especially next to the walls of buildings and along the border of walks. It accumulates chiefly upon the tender new leaves and upon the bases of the leaves. About my house during the early part of November and first ten days of December, the date of this writing, young and apterous females have been very abundant, and winged viviparous females not scarce. No sexual forms or eggs have been found. In places the blue grass has been killed during late fall and early winter by this louse.

Rhopalosiphum poæ, n. sp.—Winged Viviparous Female. Plate 3, figs. 1 and 3. Specimens taken on lawn grass *Poa pratensis*, at Fort Collins, November 17, 1907.

General colour, apparently a uniform black, but really a very dark dusky-brown or brownish-black. The base of the beak and the proximal ends of the femora are the only light parts. The tibiæ are lighter in colour than the femora, and are a dusky brown. The cornicles are lighter than the other portions of the body, and are light to dark dusky-brown. Thorax and abdomen highly polished above.

Length 1.80 mm.; length of antenna, 2.40 mm.; cornicles, .33 mm.; wing, 3.40 mm. Joints of antenna: III .70, IV .51, V .37, VI .14, VII .65 mm. While the joints vary some in length, they do not vary much from the above measurements. Third joint of antenna with many strongly tuberculate sensoria both above and beneath; joint four with about 24 similar sensoria (see fig. 2), and joint five with about three near its proximal end. The antenna is upon moderate tubercles, which are hardly



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noticeable on the outer margins, but are moderately produced on the inner margins, where they are somewhat swollen, as in *Myzus*. The first joint of the antenna is slightly gibbous, also reminding one of the genus *Myzus*. Wing venation normal, stigma dusky-brown, stigmal nerve strongly curved, the middle ocellus rather prominent, the lateral tubercles of the prothorax were slender or wanting, and the cauda very small, almost obsolete. The cornicles are shaped like an Indian club, with the greatest diameter a little beyond the middle and with the enlargement somewhat greater upon the inner side of the cornicles. The greatest diameter is more than twice the diameter at the proximal end. Beak short, barely attaining the second coxæ.

Apterous Viviparous Female.—(Plate 3, fig. 2.) Taken along with the alate form.

Length of body and of antenna, 1.9 mm. Joints of antenna: III .46, IV .34, V .29, VI .13, VII .50 mm. Length of cornicles, .29 mm.; shape of cornicles as in the winged form. The cauda is very short and pointed, black in colour, and does not exceed the tarsi in length. The colours are as in the alate form, except that the body is not highly polished, and the femora are not as black. Antennal tubercles rather large and strongly gibbous on the inner sides, as are the first joints of the antennæ. Except for the cornicles, the head characters of this insect would cause it to be classified as a *Myzus*. The body has many capitate hairs, which are most abundant about the head, the terminal segments of the abdomen, the legs and the proximal joints of the antennæ. The vertex is strongly produced, almost tuberculate between the antennæ.

No other food-plant than blue grass has been found for this species.

Rhopalosiphum nervatum, n. sp.—Described from specimens taken on wild rose leaves and tender stems, in Fort Collins, July 3, 1907. A light-green louse of medium size and with conspicuous black nervures in the wings, common upon wild and cultivated roses throughout the summer and fall.

Alate Viviparous Female.—Pale green in colour, with light yellowish-brown mesothoracic lobes above, dark red eyes, wings with heavy dark-brown venation, antennæ black, except joints 1 and 2 and proximal end of 3rd; tarsi and distal ends of tibiæ black, tibiæ and distal portions of

femora and distal half of cornicles dusky, cauda pale green and .22 mm. long.

Length of body, 2.10 mm.; antenna, 2.90 mm. Joints of antenna about as follows: III .60, IV .43, V .40, VI .15, VII .90 mm. Cornicles, .66 mm., and distinctly but not strongly clavate. Wing, 3 mm. long, venation normal, each nervure terminating in a small dusky spot on wing margin. Stigma long and narrow, stigmatic vein very convex.

A very abundant species on tender terminal twigs of wild and cultivated roses about Fort Collins now. Many viviparous females getting wings.

Apterous Viviparous Female.—Differs from preceding by having the body light green throughout, antenna with 7th joint black, and the others light green annulated with black at joints and no sensoria on 3rd joint; distal portion of tibiæ, femora and cornicles hardly dusky, if at all. Taken along with the alate form above.

Apterous Oviparous Female.—(Plate 3, figs. 4 and 5). On rose bushes, Fort Collins, Oct. 17, 1907.

Adult oviparous females are light orange-red in colour upon head, anterior portion of thorax and terminal portion of the abdomen, including the cauda. The eyes are very dark red. The metathorax and all the abdomen to the region of the cornicles is light to very dark dusky green. Usually a broad pale yellow or yellowish-green area crosses the abdomen in the region of the cornicles, this light colour sometimes extending to the tip of the abdomen. In some specimens the entire body is pink in colour, the dark markings being fairly uniform. The antenna is pale in proximal half with distal ends of joints 3, 4 and 5, and all of joints 6 and 7 black; legs dusky yellow with tarsi and distal ends of tibiæ black or blackish; cornicles also dusky yellow with extreme tips black, gently curved and moderately clavate.

Length of body, 2 mm.; antenna, 2.5 mm. Joints: III .60, IV .40, V .43, VI .15, VII .80 mm. Cornicles, .68 mm.; cauda, .25 mm.; antennæ upon strong tubercles, prothoracic tubercles wanting, 2nd joint of antenna gibbous upon inner side.

A few light yellow viviparous females still on the leaves, but most of the lice are oviparous females and winged males now. A few eggs,

bright green in colour, were seen upon the leaves, which became deep shining black later (fig. 5).

Winged Male.—(Plate 3, figs. 6 and 7.)

Colour, a pale greenish-yellow; head, prothorax, lobes of mesothorax above and below and three lateral spots upon the abdomen, yellowish brown; antennæ, cornicles, tibiæ, tarsi and distal ends of femora dusky to blackish; eyes dark red; in some specimens the dorsum of the abdomen shows transverse yellowish-brown lines upon many of the segments.

Length, about 1.40 mm.; antenna, 2.90 mm. Joints: III .60, IV .51, V .48, VI .16, VII 1 mm. Joints 3, 4 and 5 all have a row of very small and slightly tuberculate sensoria upon the under side for their entire lengths (fig. 7). Cornicles a little curved, distinctly clavate, and .55 mm. long; venation of wing conspicuously black. Frontal tubercles for antennæ short but fairly stout; 1st joints of antennæ gibbous upon inner side; cauda concolorous with body or a little dusky.

On account of the somewhat incrassate cornicles I am placing this species in the genus *Rhopalosiphum*, but it has the general appearance of *Macrosiphum*. This was by far the most common rose louse about Fort Collins the past summer. Described from examples taken with the oviparous females above.

Macrosiphum Sanborni,* n. sp.

A brownish-black pyriform louse, with all parts of the body above highly polished. From chrysanthemums in greenhouse.

Apterous Viviparous Female.—(Plate 3, figs. 8 and 9.)

Colour, to the naked eye, very dark brown or black. The lightest portions are the margins of the meso- and metathorax, and the posterior and postero-lateral portions of the abdomen. The cauda, the cornicles, the distal ends of the femora, the proximal and distal ends of the tibiæ, joints 1 and 2 and distal half of antenna, black; greater portion of tibiæ, basal portions of femora and 3rd joint of antenna, brownish yellow; eyes very dark red.

Length of body, 1.85 mm.; antenna, 1.85 mm. Joints: III .53, IV .27, V .26, VI .12, VII .50 mm. Cauda, .26, and cornicles, .24 mm.

*Koch's black chrysanthemum louse, *Aphis chrysanthemi*, can hardly be this species, as it was described and figured as having the cauda very short, hardly longer than broad. *Macrosiphum campanule* (Kalt) seems to be the most closely-allied form so near as I can determine from the literature that I have access to.

long. The cauda is very long and stout for the size of the louse; the cornicles are stout, strongly tapering towards tip and without distinct flange; 3rd joint of antenna with about 15 to 20 circular sensoria, varying much in size; joint 4 without sensoria; a few stout hairs on joints 1 to 5; frontal tubercles rather prominent, converging towards the head, but widely separated. Thorax without lateral tubercles, or with very small ones.

The nymphs are dark amber in general colour.

Alate Viviparous Female.—Taken from chrysanthemums at Fort Collins, December 12, 1907.

General colour black, shining, with more or less of brown amber colour on posterior margins of the abdomen and in the region of the cornicles; coxæ and distal ends of femora and tibiæ very black; proximal ends of femora and tibiæ of a light amber colour.

Length of body, 1.43 mm.; antenna, 2 mm.; wings, 2.90 mm.; cornicles, .20, and cauda, .23 mm. Joints of antenna: III .60, IV .26, V .30, VI .13, VII .54 mm. Joint 3 is strongly tuberculate, with a large number of sensoria. Joint 4 has about ten sensoria similar to those of joint 3; joint 5 has a single sensorium at distal end; joints set with numerous rather strong hairs.

For a fuller description of the alate female see paper on *Kansas Aphididæ*, in Vol. III, No. 1, Kansas University Science Bulletin, by C. E. Sanborn.

Prof. Sanborn, supposing he had before him Oestlund's *Nectarophora chrysanthemi* (quite a different species), described the alate female of this common chrysanthemum louse.

It is possible that this louse is the one called by Williams *Siphonophora chrysanthemicolens* in his *Host-plant List of North American Aphididæ*, Special Bulletin I., Department of Entomology, University of Nebraska, 1891, but without one word of description. In all probability it is what Mr. Gahon has referred to in Bulletin 119 of the Maryland Exp. Sta., p. 14, as the "Black Aphis of the Chrysanthemum," but also without description. I believe it entirely wrong to accept a name proposed as *chrysanthemicolens* was. If there is any group of insects more than another that need a very careful characterization to establish the identity of the species, it seems to me that it must be the Aphididæ.

We have found this louse common in greenhouses in Colorado, and upon chrysanthemums only. We have seen no sexual forms.

Nectarophora chrysanthemi, Oest, was taken upon a composite, *Bidens chrysanthemoides*, one of the Bur-Marigolds, and not upon chrysanthemum.

Brachycolus Ballii, n. sp.

A long, slender, flat, thrip-like louse with very short legs, antennæ and beak, and without cornicles; body more or less pulverulent throughout. On *Carex* sp.

Wingless Viviparous Female.—(Plate 3, figs 10 and 11.)

General colour very light greenish-yellow, mottled heavily with dusky spots above and below, and covered with white bloom. Body very long and narrow; medium length, about 2.25 mm.; width, .75 to .80 mm.; antenna, .80 mm. Joints: III .19; IV .13; V .14; VI .14; VII .09 mm. The cornicles are mere circular openings midway upon the 6th segment, and often difficult to find; cauda knobbed, short; supragenital or anal plate bifid; vertex evenly rounded and quite convex; eyes very dark red and entirely without tubercles; legs short and stout, the third pair hardly attaining the 7th abdominal segment; beak extremely short, not attaining 2nd pair of coxæ.

The dusky colour is usually solid upon head, pro- and mesothorax, and about 3 or 4 of the terminal segments of the abdomen above, and there is a large dusky spot on either lateral margin of each segment. Legs and antenna dusky to blackish; hairs upon legs, antenna and body short and fine but fairly abundant.

Described from many specimens taken at Fort Collins, Aug. 9, Oct. 30 and Dec 3. I have also taken specimens at Rocky Ford, Colo. All our specimens have been taken from *Carex Nebraskensis*.

Apterous Oviparous Female.—(Plate 3, figs. 12, 13 and 14.)

Length of body, 2.90 mm.; greatest width, .96 mm.; length of antenna, 1.37 mm. Joints: III .43, IV .26; V .25, VI .17, VII .15 mm. Legs very short; anterior tibiæ, .60 mm. long. Eyes without tubercles. General colour a pale greenish-yellow, with slight dusky transverse lines, more or less broken or indistinct at each suture of thorax and abdomen. Eyes black or very dark red; antenna black beyond 2nd joint, but more or less covered with a white pulverulence; tarsi and posterior tibiæ and a

slight longitudinal line either side of the pronotum, dusky to blackish. No other dark markings. Cornicles absent, but in the place of each is a pore with a yellow spot just before it. Between the antennæ the vertex has a large flat bilobed tubercle or prominence. At the sides of joints 6 and 7 of the abdomen there are, on the ventral surface, upon either side, glands that secrete delicate silvery white wax threads which are used to cover the newly-laid eggs (fig. 13). Cauda knobbed as in *Callipterus*; anal plate bilobed; beak very short, not reaching 2nd coxæ.

Eggs.—(Plate 3, fig. 13.)

The eggs when freshly deposited are a beautiful pale yellowish green, lightly covered with bits of slender wax threads from the abdomen of the female. Dimensions of eggs, .71 by .29 mm. They are deposited upon the free surface of the leaves or in the fold along the mid-vein and near the base.

Described from a louse and her eggs that have been under observation for two weeks in the laboratory (12-4-'07).

This louse differs from the characters that Buckton lays down for *Brachycolus* by having the 7th joint of the antenna short, and by having the cauda knobbed as in *Callipterus*.

No alate form or pupæ have been seen.

It gives me pleasure to dedicate this interesting species, the first of this genus described in America, to Dr. E. D. Ball, who first discovered it in 1899 upon the grounds of the Colorado Agricultural College.

EXPLANATION OF PLATE 3.

Plate.—*Rhopalosiphum poæ*, n. sp.: 1, alate viviparous female; 2, joints 3 and 4 of the antenna of same; 3, apterous viviparous female. *Rhopalosiphum nervatum*, n. sp.: 4, apterous oviparous female; 5, egg of same; 6, alate male; 7, joints 3 and 4 of antenna of same. *Macrosiphum Sanborni*, n. sp.: 8, apterous viviparous female; 9, joint 3 of antenna of same. *Brachycolus Ballii*, n. sp.: 10, apterous viviparous female; 11, antenna of same; 12, apterous oviparous female; 13, egg, and 14, antenna of same. All the lice are enlarged 15 diameters. Original. M. A. Palmer, Artist.